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# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
# BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

## APPELLANT'S MAIN BRIEF ON APPEAL

| | | | |
|---|---|---|---|
| APPLICANT: | Robert KUTKA, et al. | DOCKET NO: | P99,2301-01 |
| SERIAL NO.: | 09/423,454 | ART UNIT: | 2613 |
| FILED: | November 8, 1999 | EXAMINER: | Allen C. WONG |
| CONF. NO.: | 6761 | | |

TITLE: METHOD AND ARRANGEMENT FOR ENCODING AND DECODING A DIGITIZED IMAGE WITH PICTURE ELEMENTS

5

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

10

Sir:

In accordance with the provisions of 37 C.F.R. §41.37, Appellant submits this Brief in support of the appeal of the above-referenced application in support

15 of the patentability of claims 27-52 finally rejected in the Final Office Action (FOA), dated April 28, 2005. A copy of the claims on appeal is attached as Appendix A. A Notice of Appeal was filed on August 29, 2005..

## REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee, Siemens

20 Aktiengesellschaft, a German corporation, by virtue of the Assignment recorded November 8, 1999, at reel/frame 010517/0647.

## RELATED APPEALS AND INTERFERENCES

There are no related appeals and no related interferences known to Appellants, Appellants' Assignee, or Appellants' legal representative.

25 ## STATUS OF CLAIMS

Claims 27-52 are on appeal, and constitute all pending claims of the application.

The rejected claims were rejected as follows:

| Claims / Section | 35 U.S.C. Sec. | References / Notes |
|---|---|---|
| 27-29, 35-40, 42-44, 46-50 and 52 | §103(a) Obviousness | • Pullen (U.S. Patent No. 5,867,221); and<br>• Wober (U.S. Patent No. 5,748,792). |
| 30-34, 45 | §103(a) Obviousness | • Pullen (U.S. Patent No. 5,867,221);<br>• Wober (U.S. Patent No. 5,748,792); and<br>• Girod (U.S. Patent No. 5,854,858). |
| 41, 51 | §103(a) Obviousness | • Pullen (U.S. Patent No. 5,867,221);<br>• Wober (U.S. Patent No. 5,748,792); and<br>• Sebestyen (WO96/32717). |

## STATUS OF AMENDMENTS

5      The Request for Continued Examination and Amendment C was filed November 26, 2003, and the claim amendments were entered by the Examiner..

## SUMMARY OF THE CLAIMED SUBJECT MATTER

The use of page and line numbers and reference characters in the

10   drawings is provided by way of example and is in no way intended to limit the claimed subject matter unless expressly indicated. References to the specification are provided below as <page no.>/<line no(s).>. References to prior art patents are provided below as <col. no.>/<line no(s).>.

In general terms, the invention is directed to a method and appertaining

15   apparatus for encoding a digitized image having picture elements. One aspect of the invention comprises the encoding of the digitized image, and another aspect of the invention comprises both encoding and decoding of the digitized image.

For the encoding of the image (claims 27, 43), one starts with a digitized image (B) subdivided into image blocks (BB) each having, e.g., 8x8 picture

20   elements (e.g., pixels) BP as illustrated in Figure 1A (5/27-29). As illustrated in

Figure 1B, the picture elements (BP) are grouped into image segments (BB) and ungrouped picture elements (Z) (6/1-5). The grouping is based on a mathematically defined region of the digitized image and is derived solely from the digitized image itself (exemplified in Figure 1B—the image grid and the

5 square/rectangular regions; 6/6-9). At least one ungrouped picture element (Z) is located between the image segments (BB).

A reduced image grid (BR) is created (Figure 1C) from the grouped picture elements (BB from Figure 1B) and omits the ungrouped picture elements (Z) 6/6-9), thereby producing an image grid having a smaller size (Figure 1C, 6/10-12).

10 Only the grouped picture elements that are grouped into an image segment are encoded (e.g., via a discrete cosine transformation DCT; 6/14-15; Figure 1D, 101) and not any of the ungrouped picture elements (Z).

For decoding of the encoded image (claims 28, 44), the encoded image segments (BB, Figure 1C) are transmitted (Figure 1D, 101) from a first

15 arrangement to a second arrangement (6/17-18). The image segments (BB, Figure 1C) are decoded, e.g., using an inverse discrete cosine transformation (Figure 1D, 1E; 16/19-20), into a decoded reduced image grid (DBR, Figure 1E). The decoded reduced image grid is then expanded into an expanded image grid (EBR, Figure 1F) having the same size as the original image (B) (6/22-23). New

20 picture elements are inserted in the gaps of the expanded image (EBR) corresponding to the gaps left by the non-encoded (i.e., non-grouped) picture elements (Z from Figure 1B) between the decoded image segments. (6/22-25; 7/6-9). An interpolation is performed between the image segments (Figure 1F), and the interpolated values are utilized by being allocated to the new picture

25 elements that were created by the expansion between the image segments (Figure 1F, 7/10-13).

## GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issue on appeal is as follows:

1. Whether the subject matter of independent claims 27, 28, 43 and 44 is

30 obvious under 35 U.S.C. §103(a) over Pullen (U.S. Patent No. 5,867,221) in view

of Wober (U.S. Patent No. 5,748,792).

# ARGUMENT

## *ARGUMENT 1—Obviousness of claims 27, 28, 43 and 44 in view of Pullen and Wober*

5 ***Examiner's Position: The combination of Pullen and Wober renders claims 27, 28, 43 and 44 obvious under 35 U.S.C. §103(a) because all of the elements of the claims are taught or suggested by this combination.***

In the Final Office Action (FOA), on pp. 5-7, the Examiner stated that

Pullen met numerous elements of the independent claims. The Examiner

10 focused on claim 28, presumably because it had numerous elements that related

to elements of the other independent claims.

In reading Pullen on the elements of independent claim 28, the Examiner

stated:

15
> Regarding claim 28, Pullen discloses a method for encoding and decoding a digitized image having picture elements, said method comprising the steps of:

20
> grouping all except at least one picture at least one picture elements of said digitized image into a number of image segments in a first arrangement, said at least one ungrouped picture element being from at least one area of said image located between image segments (note fig.1, elements 16, 12, 28, 30 and 32 comprise a first arrangement, where fig.1, element 12

25
> is a compression processor unit having present frame memory 16 and previous frame memory 30, a local decompressor 28 and vector quantization table 32, where at least one pixilated image area is located and obtained by gathering only the pixilated data

30
> difference between the current frame and the previous frame and preparing the transmission of the pixilated data difference, and the unchanged pixilated data is not sent for conserving bandwidth; col.1 1, ln.53 to col.12, ln.28);

35
> encoding said image in said first arrangement by only encoding said picture elements being grouped into an image segment (fig.1, element 12);

> transmitting said encoded image segments from said first arrangement to a second arrangement (fig.1,

element 14 is a transmitter, where the interconnected elements 18,20,32 and 24 comprise a second arrangement);

5

decoding said transmitted Image segments in said second arrangement (flg.1, element 20);

10

inserting new picture elements corresponding to said non-encoded picture elements of said encoded image in said second arrangement in an area between said decoded image segments (col.8, lines 43-48; fig.1, note image data is decoded at element 20 into map codes and then utilized for inserting new picture elements to the non-encoded picture elements);

15

interpolating said area between said image segments in said second arrangement (flg.1, note elements 20,24 and 32 function to interpolate the area between the image segments, where 32 is the vector quantization tables); and

20

allocating encoding information resulting from said interpolating to said new picture elements (fig.1, note elements 20,24 and 32 function to interpolate the area between the image segments, where 32 is the vector quantization tables and element is the regenerated frame buffer, thus the encoding information is allocated).

25      The Examiner indicated that Pullen does not specifically disclose the

limitation "based on a mathematically defined region of said digitized image

derived solely from said digitized image itself". The Examiner then applied the

Wober reference in combination with Pullen as follows (FOA, p. 7):

30

35

40

However, Wober teaches the number of image segments based on a mathematically defined region of the digitized image is derived solely from the digitized image itself (fig.1 B, note acquisition of digital image is done by element 10 and segmentation of the digital image is done by element 12 to obtain segmented digitized image to have a mathematically defined region as shown in fig.2, which illustrates a gathering of digitized image blocks that is subjected to mathematical filtering and interpolation processes, it the discrete cosine transform and the filtering processes via elements 16, 18, 22, 24 and 26, that is confined within the digitized image itself, and at element 28, the resulting image has gone through a series of processes to where the high resolution digital

image is derived from the same low resolution digital image from element 10). Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Pullen and Wober, as a whole, for implementing Wober system of improving data image resolution with Pullen's image compression/decompression system so as to overall improve image quality at the receiving end in order to display high quality images even if the image data transmitted was originally from low quality image data (col. 2, ln. 33-37).

In response to the arguments of the Appellants, the Examiner stated, on pp. 2-5:

Regarding lines 6-9 on page 6 of applicant's remarks, applicant states that Wober does not disclose meet the deficiencies of Pullen so as to obviate the present invention in that Wober does not disclose the grouping picture elements of a digitized image into a number of image segments based solely from the digitized image Itself. The examiner respectfully disagrees. Wober's element 10 of flg.1B acquires the digital image and element 12 segments the digital image to produce the segmented digitized image to have a mathematically defined region as shown in fig.2.

Wober discloses the mathematical filtering and the interpolating of the group of digitized Image blocks via the discrete cosine transform and the filtering processes, via elements 16, 18, 22, 24 and 26, occurring within the digitized image itself. Later, Wober discloses the resulting image at element 28 of fig.1, having gone through a series of processes to where the high resolution digital image, is derived from the same low resolution digital image from element 10.

Thus, Wober teaches the number of image segments based on a mathematically defined region of the digitized image is derived solely from the digitized image itself. It would have been obvious to one of ordinary skill in the art to take the teachings of Pullen and Wober, as a whole, for implementing Wober system of improving data image resolution with Pullen's image compression/decompression system so as to overall improve image quality at the receiving end in order to display high quality images even if the image data transmitted was originally from low quality

image data, as disclosed in col.2, ln. 33-37.

Regarding lines 17-22 on page 7 of applicants remarks, applicant asserts that Wober does not deal with the issue of compression like the Pullen and the present invention. The examiner respectfully disagrees. It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See In re Oetiker, 977 F2d 1443,24 USPQ2d 1443 (Fed. Cir. 1992).

Wober and Pullen are used in the same image processing and analysis environment. Further, Wober also deals with compression, as disclosed in lines 60-64 where Wober discloses the use of DCT or discrete cosine transforms with either MPEG or JPEG image compression standards. Thus, Wober does pertain to compression just like Pullen and the present invention. Therefore, the combination of Pullen and Wober is considered reasonable because both teachings pertain to compression and image processing & analysis environments.

Regarding lines 6-11 on page 8 of applicant's remarks, applicant mentions that there is no motivation for one of ordinary skill in the art to combine the teachings of Pullen and Wober. The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071,5 USPQ2d 1596 (Fed. Cir. 1988)and In re Jones, 958 F.2d 347,21 USPQ2d 1941 (Fed. Cir. 1992). In this case, It would have been obvious to one of ordinary skill in the art to take the teachings of Pullen and Wober, as a whole, for implementing Wober system of improving data image resolution with Pullen's image compression / decompression system so as to overall improve image quality at the receiving end in order to display high quality images even if the Image data transmitted was

originally from low quality image data, as disclosed in col.2, ln.33-37.

Regarding lines 6-10 on page 9 of applicant's arguments, applicant contends that since the combination of Pullen and Wober does not teach the grouping picture elements of a digitized image into a number of image segments based solely from the digitized image itself, Girod does not teach or suggest the low pass filtering. The examiner respectfully disagrees. Since Wober meets the deficiencies of Pullen in that Wober discloses the 'grouping picture elements of a digitized image into a number of image segments based solely from the digitized image itself', Girod's element 403 of fig.4 teaches the use of low-pass image filtering (fig.4, element 403). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Pullen and Girod for applying the use of a low-pass image filter to trim out discrepancies so as to efficiently encode images while maintaining accuracy. Doing so would yield smooth images at the display output.

Regarding lines 20-24 on page 9 of applicant's remarks, applicant asserts that since the combination of Pullen and Wober does not teach the grouping picture elements of a digitized image into a number of image segments based solely from the digitized image itself, Kwan does not teach the H.245 standard. The examiner respectfully disagrees. On the Office Action dated 8/18/04, the examiner relies on Sebestyen (WO 96/32717), not Kwan, to teach the H.245 standard, as shown in Sebestyen's abstract and figi. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Pullen and Sebestyen as a whole for employing the H.245 standard so as to accurately encode images in an efficient manner, while maintaining with today's highly complex video encoding/decoding standards.

APPEAL BRIEF

*Appellants' Position: The combination of Pullen and Wober fails to render
claims 27, 28, 43 and 44 obvious under 35 U.S.C. §103(a) because the
combination fails to teach or suggest elements of the independent claims.
Namely, the combination of Pullen and Wober fails to teach or suggest a*
5 *grouping of picture elements into image segments within a digitized image
that omits at least one picture element from between the image segments.
Wober only teaches overlap, inclusion and redundancy of picture elements
for within-image groupings in contrast to the omission/exclusion picture
elements for within-image groupings according to the present invention.*
10

    Independent claim 27 of the present invention requires only two elements:

        grouping all except at least one picture elements of
        said digitized image into a number of image segments
        based on a mathematically defined region of said
15        digitized image derived solely from said digitized
        image itself, said at least one ungrouped picture
        element being from at least one area of said image
        located between image segments; and

        encoding only said picture elements being grouped
20        into an image segment.

    Pullen deals with the compression of sequential video frames (2/62-64;
3/3-4) or at least the compression of multiple related data sets (3/4-6). What is
important is that Pullen does not teach any form of grouping based on a
mathematically defined region of the digitized image *derived solely from the*
25 *digitized image itself.* Pullen only discloses a grouping based upon comparing
two sequential images or two related data sets. In Pullen, regions of an image
are omitted based on a determination of the differences between a frame and the
previous frame (see Pullen, 3/24-27). In essence, information is deemed
redundant if it can be found in both frames and is therefore not transmitted. Or,
30 stated differently, Pullen implements an *inter*-image data compression by
transmitting only unchanged pixilated data between *sequential* (multiple)
frames/images. A single transmitted frame according to the method of the Pullen
reference would experience no data compression whatsoever, and the method of
Pullen could not, in fact, be used in the context of single image compression.

35    The present invention addresses a compression of a single image
performed by dividing the image into grouped and ungrouped sections based on

a mathematically defined region of the digitized image derived solely from the digitized image itself, and encoding only the grouped picture elements.

Advantageously the problems of block artifacts at the edge of image blocks in block based encoding or object edge artifacts in object based image
5   encoding are dealt with, as is dealing with the abrupt changes of the values of the encoding information that is allocated to the individual picture elements produced by continuity points at the image block edges or respectively at the image object edges (see the introduction on page 1 of the present application). Consequently, the present invention provides a method and an apparatus, respectively, which
10  enables image encoding and transmission and that is capable of dealing with the problem of image disturbances.

According to the present invention, this is achieved by grouping all except at least one picture elements of a digitized image into a number of image segments (for example, the image blocks or objects mentioned above), the at least one
15  ungrouped picture element being from at least one area of said image located between image segments, and encoding only said picture elements being grouped into an image segment where the grouping is based on a mathematically defined region of the digitized image derived solely from the digitized image itself (claim 27). This corresponds to the Example given in Figure 1 B and 1 C, where the
20  parts of the picture between the image blocks BB are not encoded, and only the picture blocks themselves are encoded. As stated in claim 28, after transmission, the "missing" parts of the picture are restored by interpolating between the encoded, transmitted and decoded picture blocks BB. The same holds true for the corresponding arrangement claims 43 and 44.

25      Since at least one picture element between the image segments are not encoded and not transmitted and interpolated after transmission and decoding, edge artifacts, for example, do not appear or are less noticeable as there is an interpolation area between adjacent image segments.

Contrary to the present invention, Pullen et al. relates to a system and
30  method for compressing related data sets of a _sequence_ (see first sentence of the abstract), or at the very least, two related sets of data. Although there is some

data which is not encoded and not sent for conserving bandwidth, this "not encoded" data corresponds to data which is unchanged from one frame to the next. Thus, Pullen et al. clearly relates to comparing several frames in a sequence and does not utilize a grouping based on a mathematically defined

5 region of the digitized imaged derived solely from the digitized image itself. The disclosure of Pullen is incapable of addressing the single frame/single image situation addressed by the present invention.

The present invention can achieve compression within a single image frame in contrast to Pullen, which requires multiple sequential frames to operate.

10 In the FOA on p. 7, the Examiner acknowledged that Pullen does not disclose the limitation based on a mathematically defined region of said digitized image derived solely from said digitized image itself.

However, in adding the Wober reference, the Examiner stated on p. 7 of the FOA:

15                         However, Wober teaches the number of image segments based on a mathematically defined region of the digitized image is derived solely from the digitized image itself [equating of Wober features to claim elements].... Therefore, it would have been

20                         obvious to one of ordinary skill in the art to take the teachings of Pullen and Wober, as a whole, for implementing Wober system of improving data image resolution with Pullen's image compression/decompression system so as to overall

25                         improve image quality at the receiving end in order to display high quality images even if the image data transmitted was originally from low quality image data...

30         Appellants disagree with the assertion that the addition of Wober serves to fill the deficiency of the Pullen disclosure so as to obviate the present invention.

The Examiner cites Wober as teaching the use of grouping picture elements of a digitized image into a number of image segments based on a mathematically defined region of the digitized image derived solely from the

35 digitized image itself—however, such a disclosure is insufficient to obviate the

present invention. The invention requires that the grouping which is based on a mathematically defined region of the digitized image derived solely from the digitized image itself *exclude* at least one picture element—the combination of Pullen and Wober fails to teach this "excluding" aspect with respect to the

5  grouping derived solely from the digitized image itself, and furthermore fails to teach such ungrouped/excluded elements being from at least one area of the image located between the image segments.

Wober deals with the issue of breaking a large image to be filtered into smaller pieces for individual processing where the filtering of the large image is

10 beyond the capabilities of an available processor. 233-37. Wober teaches to segment an image into data blocks of a predetermined size where adjacent data blocks *overlap* each other by a predetermined number of pixels. This feature is stressed several times in the Wober reference (see Abstract, Fig. 2, column 2, lines 40-42 or column 4, line 65, column 5, line 3) and is also present in all of the

15 independent claims of Wober. In stark contrast to the present invention which teaches a grouping that *excludes* picture elements, Wober teaches a grouping that *redundantly includes* picture elements from other groups (Fig. 2, showing groups with overlapping elements).

The redundant inclusion of picture elements within a group is not just an

20 obvious variant of the present invention's grouping that excludes picture elements, because there is no motivation to combine Pullen with Wober to arrive at the present invention. The Examiner states the motivation to combine on p. 7 of the FOA:

25         Therefore, it would have been obvious to one of
           ordinary skill in the art to take the teachings of Pullen
           and Wober, as a whole, for implementing [the] Wober
           system of improving data image resolution with
           Pullen's image compression/decompression system
           so as to overall improve image quality at the receiving
30         end in order to display high quality images even if the
           image data transmitted was originally from low quality
           image data (col. 2 ln. 33-37).

Both the present invention and Pullen deal with the issue of data compression for transmission—Pullen deals with a compression related to a

sequential transmission of multiple images and the present invention deals with a compression related to a transmission of a single image. Wober, however, _does not deal with the issue of compression at all_, but rather deals with processing a large image by breaking it down into a series of smaller images, processing each

5   of the smaller images independently (because the filter has a processing capability incapable of handling the larger image), then reassembling the processed smaller images back into a processed larger image.

It would make absolutely no sense to eliminate picture elements in Wober as defined by the present invention since the filtering in Wober would operate on

10  an incomplete set of data and therefore yield erroneous results when the filtered data is reassembled—that is the very purpose for the overlapped data and redundant inclusion of picture elements in Wober, i.e., so that the filter can accurately operate on all of the subimages so that when they are reassembled, the system produces a large image that is as accurate to the original as possible.

15  The groupings created by using overlapped data in Wober would result in an _expansion_ of data that would not be suitable for the compression scheme of either Pullen or the present invention. A lossy grouping of data as contemplated by Pullen and the present invention is not contemplated by Wober.

The Wober system does not serve to improve data image resolution, as

20  indicated by the Examiner, but rather serves to reproduce an image filtering of a digital image where the filter is larger than the hardware capabilities of the imaging system (Abstract)—there is no motivation for one of ordinary skill in the art to combine such a system with a data processing system that deliberately eliminates elements from the grouping.

25       The problem that needs to be solved in Pullen is how to transform an inter-image-based (requiring sequential images) delineation between grouped and ungrouped picture elements (that are omitted) into an intra-image-based delineation between grouped and ungrouped picture elements (that are omitted).

In short, Wober fails to address in any way the issue of the intra-image

30  (within image) delineation between grouped an ungrouped (omitted) image elements or how it could be combined with the Pullen reference to provide an

intra-image solution for such a delineation since none of the picture elements in Wober are "ungrouped" (omitted).

In the Examiner's Response to Arguments on p. 2 of the FOA, at lines 12-15, the Examiner states:

5        Later, Wober discloses the resulting image at element
         28 of fig. 1, having gone through a series of processes
         to where the high resolution digital image, is derived
         from the same low resolution digital image from
         element 10.

10       This is an incorrect statement of Wober's teaching. Wober does not provide a description of the starting image in element 10 as being low resolution image and the resulting image at element 28 as being high resolution. Wober simply identifies that the digital image acquired in block 10 is segmented (4/63-67), and that these resultant blocks are merged after having been processed
15 (8/39-42).

The Examiner further states, on p. 3 at lines 9-15:

         Wober and Pullen are used in the same image
         processing and analysis environment. Further, Wober
         also deals with compression, as disclosed in lines 60-
20       64 where Wober discloses the use of DCT or discrete
         cosine transforms with either MPEG or JPEG image
         compression standards. Thus, Wober does pertain to
         compression just like Pullen and the present
         invention. Therefore, the combination of Pullen and
25       Wober is considered reasonable because both
         teachings pertain to compression and image
         processing & analysis environments.

It should be noted that the present invention deals with two different forms of compression: 1) that which is acknowledged as known from the prior art, i.e.,
30 the DCT transformation/encoding on a block-based encoding scheme (1/5-14), and 2) the inventive omission of non-grouped picture elements prior to encoding and transmission, as claimed in the independent claims. The Examiner states that it would be obvious to combine Wober and Pullen because both are used in the same image processing and analysis environment, and because both have
35 some discussion related to compression. It is with respect to this second form of

compression that the present invention deals with and which is not taught or suggested by the Wober reference.

Furthermore, Appellants assert that the field of the invention is asserted too broadly.  It is not obvious to combine the teachings of two references simply

5   because they relate to the field of image processing, or even because they involve image compression.  The field of the invention is intra-image compression based on included an omitted groupings of image elements based on a mathematically defined region of the digitized image derived solely from the digitized image itself.  Pullen deals with an inter-image compression based on

10  determining the included and omitted groupings of pixels by comparing two separate images.  Wober deals with an intra-image processing that does not delineate between included and omitted groupings of pixels.  One of ordinary skill in the art would not turn to a reference (Wober) that contains no teaching whatsoever about included and omitted groupings of picture elements in order to

15  solve a problem of how to create a single image delineation between included and omitted groupings in view of the multi-image delineation provided by Pullen.

MPEP §2141.02 provides supporting discussion that the claimed invention as a whole must be considered, including portions that would lead away from the claimed invention.  Although Wober does not comprise an _express_ teaching away

20  from the claimed invention, it comprises an _implicit_ teaching away by its use of overlapping adjacent data blocks (2/38-49).  The claims of the present invention require that _only_ grouped picture elements are encoded, and therefore it can be deduced that the non-grouped picture elements are not encoded.  According to Wober, the pixel elements located "between" the adjacent blocks are actually

25  encoded twice: because they are overlapped, they are present in each of the adjacent blocks that are encoded according to Wober.  Wober does not provide any teaching whatsoever regarding ungrouped picture elements.

The Examiner cites Wober as teaching the grouping of image segments according to a mathematically defined region of the digitized image derived solely

30  from the digitized image itself, but what the combination of Pullen and Wober fail to teach in combination is the ungrouped image elements that are based on a

mathematically defined region of the digitized image derived solely from the digitized image itself, which is necessarily derived from the independent claims of the present invention, as well as the lack of encoding such non-grouped elements.

5      For the above reasons, Appellants respectfully contend that the present invention is not obvious in light of Pullen and Wober.

## CONCLUSION

For the above reasons, Appellants respectfully submits that the Examiner is in error in law and in fact in rejecting claims 27-52 based on the teachings of

10  the above-discussed references.  Reversal of the rejection of all of those claims is justified, and the same is respectfully requested.

This Brief is accompanied by a check in the amount of $500.00, as required by 37 C.F.R. §41.20(b)(2).  If necessary, the Commissioner is hereby authorized to charge any additional fees which may be required to account No.

15  501519.

Respectfully submitted,

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                      APPEAL BRIEF

APPENDIX A
CLAIMS INVOLVED IN THE APPEAL

1-26. (Canceled)

5

27. (Previously presented) A method for encoding a digitized image having picture elements, said method comprising the steps of:

grouping all except at least one picture elements of said digitized image into a number of image segments based on a mathematically

10 defined region of said digitized image derived solely from said digitized image itself, said at least one ungrouped picture element being from at least one area of said image located between image segments; and

encoding only said picture elements being grouped into an image
15 segment.

28. (Previously presented) A method for encoding and decoding a digitized image having picture elements, said method comprising the steps of:

grouping all except at least one picture elements of said digitized image
20 into a number of image segments based on a mathematically defined region of said digitized image derived solely from said digitized image itself, said at least one ungrouped picture element being from at least one area of said image located between image segments;

25 encoding said image in said first arrangement by only encoding said picture elements being grouped into an image segment;

transmitting said encoded image segments from said first arrangement to a second arrangement;

decoding said transmitted image segments in said second arrangement;

inserting new picture elements corresponding to said non-encoded picture elements of said encoded image in said second arrangement in an area between said decoded image segments;

interpolating said area between said image segments in said second

5    arrangement; and

allocating encoding information resulting from said interpolating to said new picture elements.

29.    (Previously presented) The method according to claim 27, further

10  comprising the step of:

prior to encoding said grouped picture elements, filtering said image to be encoded.

30.    (Previously presented) The method according to claim 28, wherein

15  said interpolation is performed by low-pass filtering.

31.    (Previously presented) The method according to claim 28, further comprising the step of:

prior to encoding said grouped picture elements, filtering said image to be

20    encoded; and

wherein said interpolation is performed by low-pass filtering.

32.    (Previously presented) The method according to claim 30, wherein said low-pass filtering is performed essentially at edges of said image segments.

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33.    (Previously presented) The method according to claim 30, wherein said filtering is performed after said decoding.

34. (Previously presented) The method according to claim 33, wherein said filtering is performed essentially at edges of said image segments.

5      35. (Previously presented) The method according to claim 27, wherein said image segments are image blocks.

36. (Previously presented) The method according to claim 35, wherein at least respectively one picture element is not grouped into any image block between 10 said image blocks.

37. (Previously presented) The method according to claim 28, wherein said interpolating is performed by a number of filters.

15      38. (Previously presented) The method according to claim 37, wherein said filters have characteristics dependent on an image quality of an image block; and wherein a strength characteristic of a filter increases with a reduction of said image quality of said image block.

20      39. (Previously presented) The method according to claim 37, wherein said filters have characteristics dependent on a motion vector of an image block; and wherein a strength characteristic of a filter increases with a size of a motion vector being allocated to a respective image block.

25      40. (Previously presented) The method according to claim 27, wherein said encoding is according to the H.263 standard.

41. (Previously presented) The method according to claim 28, wherein said encoding is according to the H.263 standard; and wherein said encoded image is transmitted from said first arrangement to said second arrangement by employing a capability table according to the H.245 standard.

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42. (Previously presented) The method according to claim 27, further comprising the step of:

implementing a motion compensation upon said digitized image.

10      43. (Previously presented) An arrangement for encoding a digitized image having picture elements, said arrangement comprising:

a processor unit having a processor and a memory including a program comprising the steps of:

grouping all except at least one picture elements of said digitized

15              image into a number of image segments based on a mathematically defined region of said digitized image derived solely from said digitized image itself, said at least one ungrouped picture element being from at least one area of said image located between image segments; and

20      encoding only said picture elements being grouped into an image segment.

44. (Previously presented) An arrangement for encoding and decoding a digitized image having picture elements, said arrangement comprising:

25      a first arrangement having a first processor unit comprising a processor and a memory including a program comprising the steps of:

grouping all except at least one picture elements of said digitized image into a number of image segments based on a

mathematically defined region of said digitized image derived solely from said digitized image itself, said at least one ungrouped picture element being from at least one area of said image located between image segments; and

5      encoding said image by only encoding said picture elements being grouped into an image segment;

a transmitter for transmitting said encoded image from said first arrangement to a second arrangement;

a second arrangement having a second processor unit comprising a

10      processor and a memory including a program comprising the steps of:

decoding said transmitted image segments;

inserting new picture elements corresponding to said non-encoded picture elements of said encoded image in said second arrangement in

15      an area between said decoded image segments;

interpolating said area between said image segments in said second arrangement; and

allocating encoding information resulting from said interpolating to said new picture elements.

20

45. (Previously presented) The arrangement according to claim 44, wherein said - second processor unit is programmed to interpolate by low-pass filtering.

25      46. (Previously presented) The arrangement according to claim 43, wherein said first processor unit is programmed to realize said image segments as image blocks, and wherein at least respectively one picture element is not grouped into any image block between said image blocks.

47.  (Previously presented) The arrangement according to claim 44, wherein said second processor unit is programmed to perform said interpolating by a number of filters.

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48.  (Previously presented) The arrangement according to claim 47, wherein said wherein said filters have characteristics dependent on an image quality of an image block; and wherein a strength characteristic of a filter increases with a reduction of said image quality of said image block.

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49.  (Previously presented) The arrangement according to claim 47, wherein said filters have characteristics dependent on a motion vector of an image block; and wherein a strength characteristic of a filter increases with a size of a motion vector being allocated to a respective image block.

15

50.  (Previously presented) The arrangement according to claim 43, wherein said first processor unit is programmed to encode according to the H.263 standard.

20    51.  (Previously presented) The arrangement according to claim 45, wherein said first processor unit is programmed to encode according to the H.263 standard; and wherein said encoded image is transmitted from said first arrangement to said second arrangement by employing a capability table according to the H.245 standard.

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52.  (Previously presented) The arrangement according to claim 43, wherein said first processor unit is programmed to implement a motion compensation upon said digitalized image.

## APPENDIX B
## EVIDENCE APPENDIX


There is no additional evidence entered and relied upon for this appeal.

## APPENDIX C
## RELATED PROCEEDINGS APPENDIX

There are no related proceedings associated with this appeal